UNITED STATES PATENT AND TRADEMARK OFFICE

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DICKSTEIN SHAPIRO LLP
1177 AVENUE OF THE AMERICAS (6TH AVENUE)
NEW YORK, NY 10036-2714

EXAMINER
HOTELLING, HAROLD A

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2164	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/716,622	WATANABE, AKIRA
	Examiner	Art Unit	
	HAROLD A. HOTELLING	2164	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>23 February 2009</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1 - 17</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1 - 17</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

The applicant's February 23, 2009 arguments with respect to the claims have

been considered, but are moot in view of the new grounds of rejection.

Status of Claims

Claims 1 – 17 are rejected under 35 U.S.C. 103(a).

35 U.S.C. §103 rejection

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
     obviousness or nonobviousness.

Claims 1 – 17 (assigned to NEC) (effective filing date: November 20, 2002) are

rejected under 35 USC 103 (a) as being obvious over Li (U.S. patent number

6,754,662) (assigned to Nortel) (effective filing date: August 1, 2000) in view of Kottisa

(US 2004/0049494 A1) (assigned to Hewlett-Packard) (effective filing date: September 10, 2002).

With respect to independent claim 1, Li teaches **[a] packet search <u>device</u> that performs packet filter search for an inputted <u>packet</u>** (column 2, lines 13 – 14: "The present invention relates to a method and <u>apparatus</u> for classifying data <u>packets</u>."), **comprising:**

a first search processing means for <u>searching predetermined conditional statements</u> corresponding to a plurality of information areas included in header information of said <u>packet</u> with a first search method to generate first search results (column 4, lines 23 – 27: "Forwarding engine 102 first attempts to <u>retrieve</u> a classID for a <u>defined flow</u> corresponding to the incoming <u>packet</u> from cache 108 by calculating a hash key (block 304) and using it to lookup a corresponding entry in cache 108 (block 306)."); **and a second search processing means** (column 4, lines 28 – 30: "If the classID cannot be found in cache 108 (determined in block 308), forwarding engine 102 performs a search on stored classification information in memory 110 (block 310).") . . .

Li does not appear to explicitly teach (but Kottisa does teach) **for searching the first search results of said first search processing means with a second search method that is different from said first search method** (paragraph [0006]: "According to an aspect of the present invention, there is provided a method for traversing search results from a search query. The method includes receiving the

search results arranged in a first order and allowing traversing of the search results in a

selected second order different from the first order.").

Li and Kottisa are analogous art because they are from the problem-solving area

of searches. At the time of the invention, it would have been obvious to one of ordinary

skill in the art, having the teachings of Li and Kottisa before him or her, to modify the

block 310 classification information search of Li to include the "traversing of the search

results in a selected second order different from the first order" of Kottisa because the

combination makes more search results reachable.

The suggestion for doing so would have been Kottisa (paragraph [0022]:

"Advantageously, the method for traversing search results described above gives a user

a chance to reach search results that were otherwise unreachable or reachable only

after tedious traversing using prior art means.").

Therefore, it would have been obvious to combine Kottisa with Li to obtain the

invention as specified in claim 1.

With respect to dependent claim 2, Li teaches **[t]he packet search device**

according to claim 1, wherein said <u>first search processing means</u> divides said

packet header information into a plurality of information areas and searches

across each search conditional statements structured as <u>binary search trees</u> for

each of said information areas separately (column 5, lines 54 – 57: "the choice of

data structures (i.e. a link list or a <u>binary tree</u> or other structure) may depend on the

particular design objective of the <u>packet classifier</u>.").

With respect to dependent claim 3, Li teaches **[t]he packet search device according to claim 2, wherein said second search processing means searches aggregated <u>search results</u> of said first search processing means using <u>Hash method</u>** (column 5, lines 3 – 6: "RFC process 204 performs a search for the classID using, for example, known Recursive Flow Classification (RFC) techniques, for the arriving packet if the hash look-up fails.") (column 7, lines 33 – 38: "at certain times one or more entries of the hash table in the cache should be selected for removal. This might happen when the cache space consumed by <u>hash</u> entries reaches a certain threshold of the total available cache space, or on a <u>cache miss</u> when there is no free space to add the new search result by RFC in the cache.").

With respect to dependent claim 4, Li teaches **[t]he packet search device according to claim 1, comprising a search <u>database</u> for managing each search result of said first and second search processing means for each of said <u>information area</u>** (column 4, lines 9 – 13: "Cache 108 stores a <u>hash table</u> with entries filled by class of service identifiers (i.e. classIDs) for (generally) the most recently detected flows. These entries are accessed by a hash key index that is generated by a hash function from <u>packet header information</u> . . .").

With respect to dependent claim 5, Li teaches **[t]he packet search device according to claim 4, wherein said search <u>database</u> has a plurality of search <u>keys</u>** (column 4, lines 9 – 13: "Cache 108 stores a <u>hash table</u> with entries filled by class of

service identifiers (i.e. classIDs) for (generally) the most recently detected flows. These

entries are accessed by a <u>hash key</u> index that is generated by a hash function from

packet header information . . .").

With respect to dependent claim 6, Kottisa teaches **[t]he packet search**

device according to claim 3, wherein said second search processing means

manages only <u>combinations of search results</u> (paragraph [0017]: "FIG. 3 illustrates a

sequence 20 of steps for traversing the search results 18. The sequence 20 starts in a

RESULTS AVAILABLE step 22, wherein the Web search engine 2 receives the search

results 18 in a first order. This first order may be the result of ranking of the search

results 18. The sequence 20 next proceeds to a PRESENT RESULTS step 24, wherein

the browser 12 receives a first <u>portion of the search results 18</u> from the Web search

engine 2 . . .").

With respect to dependent claim 7, Li teaches **[t]he packet search device**

according to claim 1, wherein at least <u>QoS (Quality of Service)</u> information and

<u>filter</u> information are searched for based on said <u>header information</u> (column 3,

lines 55 – 60: "Memory 110 includes stored information about how different <u>classes of</u>

<u>network traffic</u> are identified and how they are to be treated. Such information can

include SLAs for DiffServ networks, and other <u>filters</u> and parameters for establishing

different levels of <u>Quality or Class of Service</u> for different flows of traffic.").

With respect to dependent claim 8, Li teaches **[t]he packet search device**

according to claim 1, wherein said packet search processing is performed at least

in a <u>router</u> and a <u>firewall</u> (column 3, lines 29 – 33: "FIG. 1 is a block diagram showing

a classification architecture 100 in accordance with one example of the invention. Such

an architecture can be provided in . . . an enterprise access/<u>firewall</u> router, a general

Internet access <u>router</u>, etc.").

With respect to independent claim 9, Li discloses **[a] packet processing search**

<u>method</u> that searches for a packet filter for an inputted <u>packet</u> before performing

packet processing (column 2, lines 13 – 14: "The present invention relates to a

<u>method</u> and apparatus for classifying data <u>packets</u>."), **comprising:**

a first step of <u>searching</u> <u>predetermined conditional statements</u>

corresponding to a plurality of information areas included in header information

of said <u>packet</u> with a first search method to generate first search results (column

4, lines 23 – 27: "Forwarding engine 102 first attempts to <u>retrieve</u> a classID for a <u>defined</u>

<u>flow</u> corresponding to the incoming <u>packet</u> from cache 108 by calculating a hash key

(block 304) and using it to lookup a corresponding entry in cache 108 (block 306).");

and a second step (column 4, lines 28 – 30: "If the classID cannot be found in cache

108 (determined in block 308), forwarding engine 102 performs a search on stored

classification information in memory 110 (block 310).") **. . .**

Li does not appear to explicitly teach (but Kottisa does teach) **of searching the**

first search results at said first step with a second search method that is different

from said first search method (paragraph [0006]: "According to an aspect of the

present invention, there is provided a method for traversing search results from a

search query. The method includes receiving the search results arranged in a first

order and allowing traversing of the search results in a selected second order different

from the first order.").

Li and Kottisa are analogous art because they are from the problem-solving area

of searches. At the time of the invention, it would have been obvious to one of ordinary

skill in the art, having the teachings of Li and Kottisa before him or her, to modify the

block 310 classification information search of Li to include the "traversing of the search

results in a selected second order different from the first order" of Kottisa because the

combination makes more search results reachable.

The suggestion for doing so would have been Kottisa (paragraph [0022]:

"Advantageously, the method for traversing search results described above gives a user

a chance to reach search results that were otherwise unreachable or reachable only

after tedious traversing using prior art means.").

Therefore, it would have been obvious to combine Kottisa with Li to obtain the

invention as specified in claim 9.

With respect to dependent claim 10, Li teaches **[t]he packet processing search**

method according to claim 9, wherein said <u>first step</u> divides said packet header

information into a plurality of information areas and searches across each search

conditional statements structured as <u>binary search trees</u> for each of said

information areas separately (column 5, lines 54 – 57: "the choice of data structures

(i.e. a link list or a binary tree or other structure) may depend on the particular design

objective of the packet classifier.").

With respect to dependent claim 11, Li teaches **[t]he packet processing search

method according to claim 10, wherein said second step searches aggregated

search results of said first step using Hash method** (column 5, lines 3 – 6: "RFC

process 204 performs a search for the classID using, for example, known Recursive

Flow Classification (RFC) techniques, for the arriving packet if the hash look-up fails.")

(column 7, lines 33 – 38: "at certain times one or more entries of the hash table in the

cache should be selected for removal. This might happen when the cache space

consumed by hash entries reaches a certain threshold of the total available cache

space, or on a cache miss when there is no free space to add the new search result by

RFC in the cache.").

With respect to dependent claim 12, Li teaches **[t]he packet processing search

method according to claim 9, wherein each search result at said first and second

steps is managed for each of said information areas using a search database**

(column 4, lines 9 – 13: "Cache 108 stores a hash table with entries filled by class of

service identifiers (i.e. classIDs) for (generally) the most recently detected flows. These

entries are accessed by a hash key index that is generated by a hash function from

packet header information . . .").

With respect to dependent claim 13, Li teaches **[t]he packet processing search method according to claim 12, wherein said search <u>database</u> has a plurality of search <u>keys</u>** (column 4, lines 9 – 13: "Cache 108 stores a <u>hash table</u> with entries filled by class of service identifiers (i.e. classIDs) for (generally) the most recently detected flows. These entries are accessed by a <u>hash key</u> index that is generated by a hash function from packet header information . . .").

With respect to dependent claim 14, Kottisa teaches **[t]he packet processing search method according to claim 11, wherein said second step manages only <u>combinations of search results</u>** (paragraph [0017]: "FIG. 3 illustrates a sequence 20 of steps for traversing the search results 18. The sequence 20 starts in a RESULTS AVAILABLE step 22, wherein the Web search engine 2 receives the search results 18 in a first order. This first order may be the result of ranking of the search results 18. The sequence 20 next proceeds to a PRESENT RESULTS step 24, wherein the browser 12 receives a first <u>portion of the search results 18</u> from the Web search engine 2 . . .").

With respect to dependent claim 15, Li teaches **[t]he packet processing search method according to claim 9, wherein at least <u>QoS (Quality of Service)</u> information and <u>filter</u> information are searched for based on <u>header information</u> in said packet** (column 3, lines 55 – 60: "Memory 110 includes stored information about how different <u>classes of network traffic</u> are identified and how they are to be treated.

Such information can include SLAs for DiffServ networks, and other <u>filters</u> and

parameters for establishing different levels of <u>Quality or Class of Service</u> for different

flows of traffic.").

With respect to dependent claim 16, Li teaches **[t]he packet processing search**

method according to claim 9, said packet search processing is performed at least

in a <u>router</u> and a <u>firewall</u> (column 3, lines 29 – 33: "FIG. 1 is a block diagram showing

a classification architecture 100 in accordance with one example of the invention. Such

an architecture can be provided in . . . an enterprise access/<u>firewall</u> router, a general

Internet access <u>router</u>, etc.").

With respect to independent claim 17, Li discloses **[a] program for a <u>packet</u>**

<u>processing</u> search method that searches for a packet filter for an inputted packet

before performing packet processing, causing a <u>computer</u> to execute (column 10,

lines 18 – 20: "the present invention can improve <u>packet classification</u> for long-lived

flows such as streamed multimedia data, Web cache <u>server</u> based traffic, . . ."),

first processing that <u>searches</u> <u>predetermined conditional statements</u>

corresponding to a plurality of information areas included in header information

of said <u>packet</u> with a first search method to generate first search results (column

4, lines 23 – 27: "Forwarding engine 102 first attempts to <u>retrieve</u> a classID for a <u>defined</u>

<u>flow</u> corresponding to the incoming <u>packet</u> from cache 108 by calculating a hash key

(block 304) and using it to lookup a corresponding entry in cache 108 (block 306).");

and second processing (column 4, lines 28 – 30: "If the classID cannot be found in cache 108 (determined in block 308), forwarding engine 102 performs a search on stored classification information in memory 110 (block 310).") . . .

Li does not appear to explicitly teach (but Kottisa does teach) **that searches the first search results of said first processing with a second search method that is different from said first search method** (paragraph [0006]: "According to an aspect of the present invention, there is provided a method for traversing search results from a search query. The method includes receiving the search results arranged in a first order and allowing traversing of the search results in a selected second order different from the first order.").

Li and Kottisa are analogous art because they are from the problem-solving area of searches. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Li and Kottisa before him or her, to modify the block 310 classification information search of Li to include the "traversing of the search results in a selected second order different from the first order" of Kottisa because the combination makes more search results reachable.

The suggestion for doing so would have been Kottisa (paragraph [0022]: "Advantageously, the method for traversing search results described above gives a user a chance to reach search results that were otherwise unreachable or reachable only after tedious traversing using prior art means.").

Therefore, it would have been obvious to combine Kottisa with Li to obtain the invention as specified in claim 17.

Conclusion

The prior art made of record, listed on form PTO-892, and not relied upon, if any,

is considered pertinent to the applicant's disclosure.

Contact Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Harold A. Hotelling whose telephone number is (571)

270-1293. The examiner can normally be reached between 7:00 a.m. - 5:30 p.m.

Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Charles Rones, can be reached at (571) 272-4085. The fax phone number

for the organization where this application or proceeding is assigned is (571) 270-2293.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Harold A. Hotelling
Examiner
Art Unit 2164

HAH
May 15, 2009
/H. A. H./
Examiner, Art Unit 2164

/Charles Rones/
Supervisory Patent Examiner, Art Unit 2164